

1. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{3x-2} = \left(\frac{1}{36}\right)^{-3x+5}$$

- A. $x \in [-2.1, -0.8]$
 - B. $x \in [0.5, 1.7]$
 - C. $x \in [-2.9, -1.4]$
 - D. $x \in [1.8, 4.8]$
 - E. There is no Real solution to the equation.
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2. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+8} + 6$$

- A. $(-\infty, a), a \in [4, 9]$
 - B. $(a, \infty), a \in [-8, -4]$
 - C. $(-\infty, a], a \in [4, 9]$
 - D. $[a, \infty), a \in [-8, -4]$
 - E. $(-\infty, \infty)$
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3. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{-3x-3} = \left(\frac{1}{49}\right)^{-2x-5}$$

- A. $x \in [2, 6]$
- B. $x \in [-6.18, -1.18]$
- C. $x \in [-1.8, 1.2]$
- D. $x \in [-25.54, -18.54]$
- E. There is no Real solution to the equation.

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4. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-2x + 5) + 4 = 2$$

- A. $x \in [10.5, 15.7]$
 - B. $x \in [-12, -8.4]$
 - C. $x \in [2.2, 4.2]$
 - D. $x \in [16.2, 20.7]$
 - E. There is no Real solution to the equation.
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5. Solve the equation for x and choose the interval that contains x (if it exists).

$$19 = \sqrt[4]{\frac{23}{e^{8x}}}$$

- A. $x \in [-0.83, -0.29]$
 - B. $x \in [-9.92, -9.69]$
 - C. $x \in [0.88, 1.59]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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6. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x - 7) + 4$$

- A. $[a, \infty), a \in [-8.6, -5.9]$
- B. $(-\infty, a), a \in [1.4, 4.8]$
- C. $[a, \infty), a \in [4.2, 8.2]$
- D. $(-\infty, a), a \in [-4.2, -3]$
- E. $(-\infty, \infty)$

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7. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-3} - 5$$

- A. $(-\infty, a], a \in [-9, -1]$
 - B. $(a, \infty), a \in [-1, 9]$
 - C. $(-\infty, a), a \in [-9, -1]$
 - D. $[a, \infty), a \in [-1, 9]$
 - E. $(-\infty, \infty)$
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8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(3x + 5) + 5 = 3$$

- A. $x \in [-13.3, -10.2]$
 - B. $x \in [-2.6, -1.2]$
 - C. $x \in [35.1, 42.2]$
 - D. $x \in [-10.5, -8.4]$
 - E. There is no Real solution to the equation.
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9. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x + 1) + 3$$

- A. $[a, \infty), a \in [-2.32, -0.07]$
- B. $(-\infty, a), a \in [-4.53, -1.15]$
- C. $(-\infty, a), a \in [2.02, 4.17]$
- D. $[a, \infty), a \in [-0.6, 1.75]$
- E. $(-\infty, \infty)$

10. Solve the equation for x and choose the interval that contains x (if it exists).

$$7 = \ln \sqrt[6]{\frac{15}{e^{4x}}}$$

- A. $x \in [-3.59, -2.27]$
 - B. $x \in [-4.18, -3.43]$
 - C. $x \in [9.55, 9.85]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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